



ADVOCATES

FOR HIGHWAY
AND AUTO SAFETY

750 First Street, NE, Suite 901
Washington, DC 20002

October 21, 2004

Docket No. FMCSA-2004-18536
U.S. DOT Dockets, Room PL-401
U.S. Department of Transportation
400 Seventh Street, SW
Washington, DC 20590

**Notice of Request for Clearance of a New Information Collection: Bus
Crash Causation Study, 69 FR 51879 *et seq.*, August 23, 2004**

Advocates for Highway and Auto Safety (Advocates) submits the following comments in response to the information collection clearance notice in which the Federal Motor Carrier Safety Administration (FMCSA) proposes a multi-year crash causation study to gather “information describing the causes of, the reasons for, and the factors contributing to bus crashes.” 69 FR 51879, 51880. This information will purportedly allow the FMCSA and the states “to more effectively implement countermeasures to reduce the occurrence and severity of these crashes.” *Id.* The agency in this notice describes a three-part study effort that consists of mining the Fatality Analysis Reporting System for “causation factors,” evaluating insurance company data to assess the quality, quantity, and usefulness of crash causation data; and collecting data from crash samples. *Id.*

Advocates opposes this study on the basis of the foregoing description of the tasks that define the acquisition of data and their use to determine crash causation. It is recognized throughout the research community that in-depth examinations of selected cases without a control group is a descriptive effort that may provide indications for research based upon good research designs, but cannot by itself provide any causal explanations for events. The research protocol listed in this notice cannot provide testable hypotheses, and narrative explanations of so-called crash causes, even with statistical analysis, have no scientific predictive value.

Advocates has repeated these criticisms for the last several years in relation to the FMCSA’s Large Truck Crash Causation Study (LTCCS). The agency has continued to ignore or dismiss severe, sweeping criticism of the basic research design of this effort, including field data gathering, that was provided in several letter reports by the

Transportation Research Board (TRB). Moreover, preliminary results from a mandated review of the study design by the Centers for Disease Control found that the research design of the LTCCS was a bankrupt approach to scientific investigation.

If, as appears evident, the FMCSA continues to disregard well-known peer-based criteria for research designs that can generate causal explanations and avoid confounders in data acquisition, it will repeat the same mistakes in the Bus Crash Causation Study (BCCS) as it has in the LTCCS and waste scarce federal research dollars on a study that has no credibility in the research or safety communities.

For the record, Advocates lists here the shortcomings found by the safety community as well as by the TRB special committee that was empanelled to provide oversight for the LTCCS. In this regard, Advocates would like to stress that this notice provides no indication that the FMCSA intends to use an independent peer review process on the adequacy of its research approach in conducting the BCCS. This failure to use peer review oversight again demonstrates the FMCSA's rejection of any correctives provided by recognized research authorities for the data acquisition and research design of the BCCS. This refusal to use independent peer review for the BCCS will provoke the same criticisms of the severe defects of the new study that were lodged with the FMCSA concerning the LTCCS.

- **Poor Research Evidence Basis:** The Large Truck Crash Causation Study (LTCCS) uses a research design that is regarded as the lowest level of evidence for scientific investigation by the National Institutes of Health, as well as other experts in research study design – solely a clinical in-depth examination of cases.
- **The Study Does Not Use Recognized Experimental Research Design:** The study relies solely on a reconstruction of large truck crashes and a detailed examination of what are regarded as the necessary and sufficient conditions or events that were responsible for the crashes. This study design does not use any comparison or control group to compare outcomes and to test the claims about the reasons for crashes to show whether the reasons chosen can predict that certain events inevitably lead to crashes. This means that the study does not use a recognized experimental or quasi-experimental research design.
- **The Study Cannot Provide Causal Explanation for Large Truck Crashes:** The study claims that it can show the “causes” of truck crashes. However, an examination solely of several hundred cases of crashes cannot by itself provide causal explanation in science. Without a comparison group, the concept of causality in scientific explanation involving intervals of statistical confidence and calculations of relative risk or of odds ratios cannot be used.
- **The Study Cannot Control for Bias, Subjectivity, and Confounding Variables:** The study, by its own admission, relies heavily on post-crash

interviews with witnesses and crash involved parties, including eavesdropped information gathered by National Center for Statistics and Analysis personnel and contractors, to determine how the crash occurred. This means that the study cannot control for bias and subjectivity in interview data, especially given the fact that in truck-passenger vehicle fatal crashes the truck drivers usually survive, but the passenger vehicle occupants are often dead.

- **The Transportation Research Board Study Oversight Committee Has Made the Same Points About Study Deficiencies:** The Transportation Research Board (TRB) committee specially empanelled to oversee the study has sent several letters to various Federal Motor Carrier Safety Administration officials over the past two years stressing these and other deficiencies in the LTCCS research design. The final Letter Report from the Transportation Research Board (TRB) oversight committee charged with reviewing the Large Truck Crash Causation Study (LTCCS) effort jointly conducted by the Federal Motor Carrier Safety Administration (FMCSA) and the National Highway Traffic Safety Administration (NHTSA) was sent to the agencies on September 4, 2003. The committee made the following points in these letters:
 - ▶ The data collected may not produce sufficient information to identify the most effective truck-related safety countermeasures.
 - ▶ The attempt to extract information about the “causes” of highly complex, multivariate (multicausal) events like multi-vehicle crashes is fraught with numerous study design pitfalls and depends crucially on a very high level of accuracy in collecting reliable and valid data on each possible contributing factor to a crash.
 - ▶ The committee remains concerned that a study methodology of solely examining cases of crashes for coding and analyzing data will not yield valid results.
 - ▶ The committee disagrees with even basic choices of what the two agencies deem to be the “critical events” leading to the crashes and believes that these are subjective or arbitrary.
 - ▶ The committee is concerned that a review panel established by the agencies to make final determinations about what are the “critical events” for each crash case allows substantial subjectivity, and there are no documented procedures of how the review panel would make its choice.
 - ▶ The committee is also concerned that the expert analysis of the crashes does not occur in a real experimental setting, so that it is impossible for an analyst to avoid subjectivity and control all relevant factors, including confounding variables.
 - ▶ The committee emphasizes that crash data files being used are suspect for both accuracy and completeness, with some files containing data already known or suspected to be erroneous.
 - ▶ The committee disagrees with some of the characterizing descriptions of crash events as leading improperly to an assignment of fault.

- ▶ The committee is concerned over the excessive reliance on driver and trucking company interview responses about crashes, especially claims about driver sleep, rest, and hours of service compliance.
- ▶ Some committee members remain unconvinced that the determination of what constitutes the “critical events” leading to truck crash can possibly be made objectively by relying solely on an examination of the selected crash cases.
- ▶ The committee states that the in-depth review of crashes by investigators is inevitably subjective because it is biased by the very fact that a crash did occur and that any causal explanations offered for the crash, no matter how plausible, cannot be independently verified.

The LTCCS has no credibility as a causation study. The FMCSA, however, appears bent on repeating the same mistakes with the BCCS that undermined the LTCCS and provoked sustained criticism of the latter study by the TRB, the safety community, and the CDC. Accordingly, Advocates strongly opposes this information collection request.

Respectfully submitted,
ORIGINAL SIGNED
Gerald A. Donaldson, Ph.D.
Senior Research Director